

CHAPTER-4

RENEWABLE & NON-RENEWABLE RESOURCES

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RESOURCES

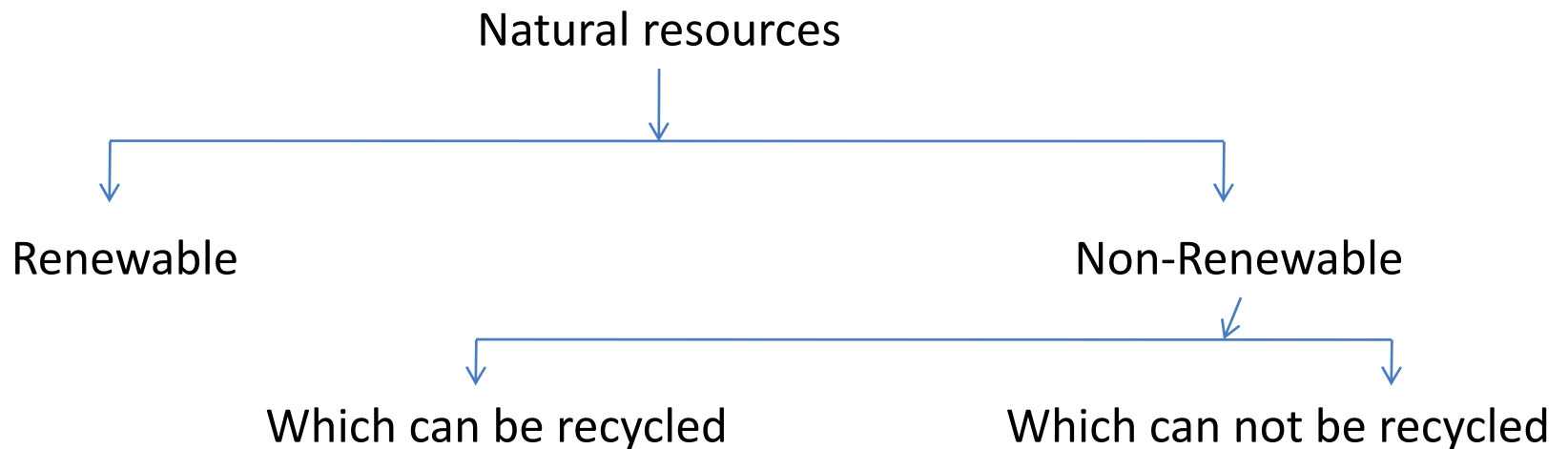
- A resource is anything we get from the environment to meet our need and desires.
- It may be useful information, material or service.
- Thus any part of our natural environment such as land, water, air, mineral, forest, wildlife, fish or even human population that man utilize to promote his welfare are regarded as natural resources

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- All form of life need resources such as food, water and shelter for survival and good health.
- Remade defined a resources as a form of energy and/or matter, which is essential for the functioning of organisms, population and ecosystem
- The five basic ecological variables: energy, matter, space, time and diversity are some time combined called NATURAL RESOURCES.
- Resources are dynamic, which not improves knowledge, expanding science and new technologies but also helps in changing culture and social objectives.

CLASSIFICATION OF RESOURCES

1. Biotic (or living) Resources :
e.g. : forest, fish, wildlife, agriculture
2. Abiotic (or nonliving) Resources:
e.g. : Land water minerals



RENEWABLE RESOURCES

- Which can be replenished through relatively rapid natural cycle
- E.g:
 1. O₂ in air replenished through photosynthesis
 2. Fresh water replenished through water cycle
 3. Biological products (wood, timber, fish) replenished through natural cycle
 4. Solar energy is inexhaustible
 5. Some natural resources are renewed in hour or several decades like forest, wildlife, fresh air, fertile soil

NON RENEWABLE RESOURCES

- NON –RENEWABLE RESOURCES THAT CAN BE RECYCLED
- Include non energy mineral resources which occur in the earth crust.
 1. Ores of copper, aluminum, mercury and other metals
 2. Deposits of fertilizer nutrients such as phosphate rock and potassium
 3. Minerals that are used in their natural state such as asbestos, mica etc

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- **Recycling** involves collecting and reprocessing a resource in to new products e.g glass bottles
- **Reuse** involves using a resources over and over the same form
- In practice, **we never completely exhaust a non renewable mineral resources**. However, it become economically depleted when the **cost** of finding, extracting, transporting and processing what is left exceed the amount the earned from that
- At that point we have 5 choice;
 1. recycle or reuse,
 2. waste less,
 3. use less,
 4. try to develop substitute or do without it and
 5. wait million of years for more to be produced

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- **NON –RENEWABLE RESOURCES THAT CAN NOT BE RECYCLED**
- Resources that exist in fixed quantity in earth's crust and thus theoretically can be completely used up are called non renewable (or exhaustible) resources.
- On a time scale of million to billion of years, such resources can be renewed by geological process.
- However, on the much shorter human time scale of hundreds to thousand of years, there resources can be depleted much faster than they are formed

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- E.g: Fossil fuel, coal, oil, natural gas (that can not be recycled or reused, once burned, fossil fuel is gone , leaving behind waste heat and polluting exhaust gases) they supply presently 90% of our energy and uranium that is used for nuclear (atomic) power

SUSTAINABLE YIELD

- The highest rate at which a potentially renewable resource can be used indefinitely without reducing its available supply is called its **SUSTAINABLE YIELD**.
- If resource's utilization rate exceeds the natural replacement rate, the available supply begins to shrink, a process known as **ENVIRONMENTAL DEGRADATION**

DESTRUCTION VERSUS CONSERVATION

DETRUCTION

- Resources are required to meet our need and desires.
- They require our day to day life
- It is very difficult image without resources
- But increase in population and to live a better life put heavy toll on resources
- It is predicted most non renewable resources will depleted in next 50-80 years

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- Renewable resources though renewable but it may be possible that rate of utilization is more than rate at which is being renewed.
- For example Ground water is renewable only at the rate which water continuous percolate in to the soil. If the rate of withdrawing water is faster than it is being replaced its gets exhausted

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- For example of Resource destruction are
 1. In many develop countries, diverse old growth forest is being replaced by single species tree plantation with much less diverse second growth forest and wild life diversity.
 2. Thousand of life species become extinct each year because of human activity

- Most of the environmental scientist believes that for next few decades the danger degradation and depletion is greater for potentially renewable resources. We cannot easily find the economically and environmentally acceptable substitutes for these resources
- Renewable sources are renewable and will last only as long as our use of them remains within capacity of the system to renew itself so maximum efforts should be made to protect the system for undue interference by pollution and human destruction.
- We have to learn to manage and the use of renewable resources in accordance to this consideration and try to conserve them.

CONSERVATION

- Conservation is sustainable use of natural resources. It is derived from 2 Latin words 'con' (together) and 'servare' (to keep or guard) thus meaning 'to keep together'
- **The true aim of conservation**
 1. Preservation of quality of environment
 2. To ensure continuous and balanced cycle of harvest and renewal

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- **Different measures for conservation are:**
 1. Stopping deforestation and increase afforestation
 2. Vertical development of cities so that less land is used for accommodating more number of people
 3. Rain water harvesting, construction of check dams etc
 4. Recycle and reuse of resources whenever possible
 5. By optimum use of resources
 6. Using more and more solar energy as it can be considered inexhaustible

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7. Development of new technology to use alternative fuels like hydrogen gas, natural gas etc.
8. Forest and wild life resources can be conserved by forming National park, sanctuary and enacting laws.

For maintaining sustainable development resources have to be conserved otherwise time will come when we may be left with very limited options and life would become very harsh for all the living organisms

TUTORIAL-4

1. What is resources? What is the important of resources in the life of human being?
2. What are the difference between renewable and non renewable resources of energy?
3. Write a short note on destruction verses conservation?
4. Give classification of resources?

END